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# DISCOMYCETES OF NORTH DAKOTA

FRED. J. SEAVER

The following is a list of the discomycetes (cup-fungi) collected and studied in North Dakota during the seasons of 1907–8. When not otherwise indicated the collections were made by the writer.

Hymenium exposed from the first, plants not usually cup-shaped, disc-shaped, boat-shaped or linear. 1. HELVELLINEAE.

Hymenium at first closed, plants cup-shaped, disc-shaped, boat-shaped or linear, opening by a circular, star-like or slit-like aperture.

Hymenium exposed at an early stage, plants cup-shaped or disc-shaped. 2. PEZIZINEAE.

Hymenium long, enclosed in a firm covering, opening with a star-like or slit-like aperture.

Opening for the most part with a star-like aperture. 3. PHACIDIINEAE.

Opening with a slit-like aperture. Plants boat-shaped or linear. 4. HYSTERIINEAE.

## 1. HELVELLINEAE

Plant large, consisting of a stem and globose pitted head. 1. MORCHELLA.

## 2. PEZIZINEAE

Plants small, 1–2 mm. in diameter, forming orange or salmon-colored masses 1–3 cm. in diameter on burnt soil. 2. PYRONEMA.

Plants not forming confluent masses and not usually occurring exclusively on burnt soil (except a few species not here recorded).

Externally clothed with dark-colored bristly hairs. 3. LACHNEA.

Externally naked or hairs when present light-colored, usually white.

Plants large, 1–8 cm. in diameter, cup-shaped, urn-shaped or saucer-shaped.

Plants stipitate, often attached to sticks in woods.

Within scarlet, without whitish, slightly hairy. 4. SARCOSCYPHA.

Within and without dark brownish-black. 5. URNULA.*

Plants sessile, on wood, soil, etc.

* Often included with the Phacidiineae.

        - Juice turning yellow when flesh is broken. 6. GALACTINIA.
        - Juice remaining colorless. 7. PEZIZA.
- Plants medium or small, 1 cm. or less in diameter.
    - Occurring on dung of animals (except one species which occurs on old paper, cloth, etc., and a few others not here recorded).
        - Spores entirely colorless.
            - Asci 8-spored, plants yellowish, cinereous or flesh-colored.
                - Plants with conspicuous, colorless spines. 8. LASIOBOLUS.
                - Plants without spines. 9. ASCOPHANUS.
            - Asci 32-spored, plants white. 10. THECOTHEUS.
        - Spores colored, at first bright purple, later brown.
            - Spores free in the ascus. 11. ASCOBOLUS.
            - Spores united in a ball in the ascus. 12. SACCOBOLUS.
    - Occurring on wood, herbaceous stems, living leaves, etc.
        - Plants superficial on the substratum.
            - Clothed with a dense covering of soft, light-colored hairs.
                - Plants sessile. 13. TRICHOPEZIZA.
                - Plants stipitate, stem often slender. 14. DASYSCYPHA.
            - Not clothed with hairs.
                - Plants stipitate, stem stout, or slender.
                    - Stem short, stout, plants occurring on wood.
                        - Hymenium bright yellow, disc nearly plane. 15. HELOTIUM.
                        - Hymenium smoky-brown, beaker-shaped. 16. GEOPYXIS.
                    - Stem comparatively long and slender, on herbaceous stems, etc.
                        - Plants small, 1 mm. or less in diameter. 17. PHIALEA.
                        - Plants medium, 3–5 mm. in diameter. 18. CIBORIA.
                - Plants sessile.
                    - Substance soft and plants not black in color.
                        - Medium, 3–5 mm. in diameter.
                            - Dark purple, rubbery, spores colorless. 19. CORYNE.

Greenish, spores colored, greenish-brown. 20. PHAEOPEZIA.
Small, not exceeding 2 mm. in diameter.
Plants disc-like, on leaves, wood, etc. 21. MOLLISIA.
Plants forming spots on leaves, alfalfa, etc. 22. PSEUDOPEZIZA.
Substance hard, forming black discs on wood, etc.
Spores with transverse septa only.
Spores 1-septate, brownish. 23. KARSCHIA.
Spores more than 1-septate, colorless.
Spores filiform, breaking into joints. 24. BACTROSPORA.
Spores not filiform. 25. PATELLARIA.
Spores muriform. 26. BLITRYDIUM.
Plants formed below the epidermis and bursting through usually in clusters.
Plants medium, 3 or more mm., usually cup-shaped. 27. CENANGIUM.
Plants small, 1–2 mm. mostly disc-shaped. 28. DERMATEA.

### 3. PHACIDIINEAE

Plants forming light-colored linear patches on old wood, etc. 29. PROPOLIS.

### 4. HYSTERIINEAE

Plants almost entirely superficial.
Lips spreading so that the plants become subpatellate. 30. HYSTEROPATELLA.
Lips tightly closed or only slightly spreading.
Spores muriform, with transverse and longitudinal septa.
Spores colored brown. 31. HYSTEROGRAPHIUM.
Spores colorless. 32. GLONIOPSIS.
Spores 1-septate, colorless. 33. GLONIUM.
Plants submerged, surface even with surface of substratum. 34. HYPODERMA.

## 1. HELVELLINEAE

### 1. MORCHELLA

MORCHELLA ESCULENTA (L.) Pers. A species well known by its stipitate, subglobose, deeply-pitted head. Commonly classed with the mushrooms and much valued for its edible qualities.

Observed by the writer from material collected by one of the students of the Agricultural College.

## 2. PEZIZINEAE

### 2. PYRONEMA

PYRONEMA OMPHALODES (Bull.) Fuckel. Forming salmon-colored patches often several cm. in diameter on soil where wood or rubbish has been burned. While the individual plants are small they run together so closely that they present the appearance of one continuous mass which is surrounded by a spider-web-like halo of mycelium. The species was collected often in North Dakota about Sykeston on damp soil where there was no apparent trace of fire, but the places had doubtless been burned over, as the plants are usually restricted to burnt places. Also collected elsewhere on soil which had been sterilized by heating.

### 3. LACHNEA

LACHNEA SCUTELLATA (L.) Sacc. Saucer-shaped plants as large as 1 cm. in diameter with a bright red hymenium surrounded by a border of dark-colored hairs. On wood and the surrounding soil. Collected at Sykeston.

LACHNEA SETOSA (Nees) Sacc. Occurring often closely crowded on decaying mossy logs in woods. Similar to the preceding but plants one-third as large and hairs much longer. Collected on old box-elder logs in woods near Fargo.

LACHNEA HEMISPHERICA (Wigg.) Gill. Hemispherical plants about the size of a large acorn-cup, growing on moist soil in shaded places in woods. Inside of cup whitish or bluish-white, externally clothed with chestnut-brown, bristly hairs. Collected in woods near Fargo.

### 4. SARCOSCYPHA

SARCOSCYPHA COCCINEA (Jacq.) Cooke. Plants found in woods in spring attached to partially buried sticks. Inside of cups, which are often 3 cm. or more in diameter, brilliant scarlet, outside whitish and more or less downy with soft white hairs.

One of the most attractive of the discomycetes on account of its brilliant color. Observed from material collected by one of the students of the Agricultural College.

SARCOSCYPHA OCCIDENTALIS (Schw.) Cooke. Habitat similar to that of the preceding but plants occur all summer. Stem usually longer and more slender, cups smaller and shallow, saucer-shaped instead of deep funnel-shaped as in the preceding. Collected commonly in woods about Fargo.

### 5. URNULA

URNULA CRATERIUM (Schw.) Fries. Occurring in woods on buried sticks, a number of specimens often attached to a single stick. Plants at first club-shaped and entirely closed, finally opening with a star-like aperture and becoming urn-shaped but margin usually notched. Outside and inside dark brownish-black. The position of this species is uncertain but on account of the manner in which the cups open the genus is often included with the Phacidiineae.

### 6. GALACTINIA

GALACTINIA SUCCOSA (Berk.) Cooke. Plants cup-shaped, rather large, 2–3 cm. in diameter, inside brown, externally whitish. When the flesh is broken the exuding juice turns golden-yellow. Occurring on damp soil in shaded woods. Collected near Fargo.

### 7. PEZIZA

PEZIZA VESICULOSA Bull. Large cup-shaped plants often 6–8 cm. in diameter, yellowish inside, whitish externally, occurring usually in dense clusters on strawy manure piles and soil fertilized with such material. The cups are at first regular in form, becoming much contorted and twisted. A common species. Collected at Sykeston.

PEZIZA REPANDA Wallr. This species occurs on decaying logs in woods, and, while it resembles the preceding in color, it differs in form, the cups soon becoming repand, leaving the hymenium convex. This is a species concerning which there is much doubt. The specimen collected near Fargo by the writer conforms with what is usually accepted as this species. The plant was about 6 cm. in diameter.

PEZIZA BADIA Pers. The brown cup-fungus common on moist soil in woods. The specimens collected in Fargo woods were small, about 2–3 cm. in diameter, but the plants of this species often attain a size of 8–10 cm.

### 8. LASIOBOLUS

LASIOBOLUS EQUINUS (Muell.) Karst. The plants of this species while minute, usually occur in dense masses on dung of various kinds, especially that of horses and cows. The color varies from yellowish to reddish but the plants are always characterized by the thick covering of colorless spines. Collected on dung of horses at Sykeston.

### 9. ASCOPHANUS

ASCOPHANUS CINEREUS (Crouan) Boud. Plants occurring gregarious or densely crowded on dung of horses, and characterized by the grayish or often nearly black color. Collected on horse dung in a swampy place in open woods near Fargo.

ASCOPHANUS TESTACEUS (Moug.) Phill. Plants flesh-red, usually gregarious or scattered on hemp cloth, building paper, rags, etc. Specimens collected near Fargo were found on building paper near the remains of an old house.

ASCOPHANUS CARNEUS (Pers.) Boud. Similar in color to the preceding but differing in its habitat as well as in morphological characters. Rather a common species on old cow dung. Collected commonly about Sykeston.

### 10. THECOTHEUS

THECOTHEUS PELLETIERI (Crouan) Boud. Plants white, at first conical, later cylindrical. Common on dung of various kinds and easily characterized by its 32-spored asci, as well as by its gross characters. Collected in woods near Fargo.

### 11. ASCOBOLUS

ASCOBOLUS IMMERSUS Pers. Plants small and not easily seen as they closely resemble in color the substratum on which they occur, but often occurring in abundance. Characterized by the asci filled with dark purple spores which project far above the surface of the hymenium. The spores in this species are unusually large. Collected near Sykeston.

### 12. SACCOBOLUS

SACCOBOLUS KERVERNI (Crouan) Boud. Plants small, golden-yellow, with the hymenium dotted with the ends of the asci containing dark purple spores. A common species on dung of cows. Specimens collected at Sykeston.

SACCOBOLUS VIOLASCENS Boud. Differs from the preceding in that the plants are violet instead of golden-yellow. The species also differs in microscopic characters. Specimens collected at Sykeston on horse dung.

### 13. TRICHOPEZIZA

TRICHOPEZIZA SULPHUREA (Pers.) Fuckel. Plants small, occurring on herbaceous stems and characterized by a dense covering of sulphur-yellow hairs. Collected at Fargo.

TRICHOPEZIZA TILIAE (Peck) Sacc. Plants small, white, and clothed externally with a dense covering of white hairs. Common and abundant on the bark of dead branches of basswood (*Tilia Americana*). Collected commonly about Fargo.

### 14. DASYSCYPHA

DASYSCYPHA NIVEA (Hedw.) Sacc. Plants stipitate and clothed with a dense covering of white hairs. Specimens collected on herbaceous stems at Hawk's Nest. The species is common on decaying wood, especially oak.

### 15. HELOTIUM

HELOTIUM CITRINUM (Hedw.) Fries. Plants very bright lemon-yellow, and usually occurring thickly gregarious on old wood, and sometimes becoming slightly confluent. Collected in woods near Fargo.

### 16. GEOPYXIS

GEOPYXIS NEBULOSA (Cooke) Sacc. Plants medium in size, beaker-shaped, smoky-brown. Occurring on decaying logs in woods. The species is distinguished by its fusiform spores. Collected commonly about Fargo.

### 17. PHIALEA

PHIALEA URTICAE (Pers.) Sacc. Small, pale yellow plants with a slender stem. Collected commonly about Fargo on dead stems of nettle (*Urtica* sp.).

### 18. CIBORIA

CIBORIA SULPHURELLA (Ellis & Everh.) Rehm. Plants medium, stipitate, stem often very long or very short according to depth at which the substratum, petioles of ash leaves, is buried under leaves and soil. This species has been observed by the writer not only in North Dakota but commonly in Iowa and New York and apparently grows wherever the ash is found. The plants are very variable in color, ranging from sulphur-yellow or yellowish-green to reddish-brown. Collected at Hawk's Nest and Fargo.

### 19. CORYNE

CORYNE SARCOIDES (Jacq.) Tul. Often growing in clusters from crevices in decaying logs. Of a purple color and often very dark, with the substance inclined to be tough or rubbery. A common species. Collected near Fargo.

### 20. PHAEOPEZIA

PHAEOPEZIA FUSCOCARPA (Ellis & Holw.) Sacc. Plants saucer-shaped or disc-shaped, occurring on the under side or near the soil on rotting logs, dark colored with a shade of green, The spores of the species are also green, becoming brown. Collected in woods near Fargo.

### 21. MOLLISIA

MOLLISIA CINEREA (Batsch) Karst. Plants small or medium, saucer-shaped, with a light-colored border. Common on wood and decaying herbaceous stems. Collected commonly about Fargo. The specimens occurring on herbaceous stems may be distinct from those on wood but we can see no difference.

MOLLISIA DEHNII. Rabenh. On living leaves and stems of *Potentilla* sp. The plants, when they occur, almost entirely cover the leaves and stems of the host. They are small and disc-shaped and of a rather dark color. Collected at Fargo in the Agricultural College grounds.

### 22. PSEUDOPEZIZA

PSEUDOPEZIZA MEDICAGINIS (Lib.) Sacc. Forming minute brown leaf-spots on the living leaves of the host and causing much damage to the crop. Collected commonly at Fargo in the Agricultural College grounds, on leaves of alfalfa.

### 23. KARSCHIA

KARSCHIA TAVELIANA Rehm. Forming small black discs, often in considerable numbers, on partially decayed wood. Collected about Fargo on logs of decaying ash.

KARSCHIA LIGNYOTA (Fries) Sacc. Similar to the preceding but smaller and spores also different. Collected on old wood at Hawk's Nest.

### 24. BACTROSPORA

BACTROSPORA DRYINA (Ach.) Mass. The genus is represented by a single species, and no previous record of it has been seen from North America. Specimens collected on dead branches of *Symphoricarpus occidentalis,* by J. F. Brenckle, at Kulm, N. D.

### 25. PATELLARIA

PATELLARIA ATRATA (Hedw.) Fries. Plants similar in external appearance to those of the preceding genus but very different internally. Spores much larger, colorless and many-septate. Substance with transmitted light bluish. Hawk's Nest.

PATELLARIA CLAVISPORA (Peck.) Sacc. This species is very common on bark and wood of willow and cottonwood. The spores are very different in form and color from the preceding. Collected about Fargo.

### 26. BLITRYDIUM

BLITRYDIUM FENESTRATUM (Cooke & Peck) Sacc. Plants similar to those of the two preceding genera but spores much larger, broader, brown, and divided by both longitudinal and transverse septa, becoming muriform. Collected commonly on the bark of dead twigs of *Populus tremuloides*, in woods near Fargo.

### 27 CENANGIUM

CENANGIUM FURFURACEUM (Roth.) DeNot. Plants forming cespitose clusters bursting through the bark of the host. Collected commonly about Fargo on dead branches of *Corylus* sp. The cups remain for a long time closed, finally opening and becoming cup-shaped.

### 28. DERMATEA

DERMATEA sp. A species of this genus was collected in great abundance on dead branches of *Amelanchier* sp. in woods at Hawk's Nest. The species is still undetermined.

## 3. PHACIDIINEAE

### 29. PROPOLIS

PROPOLIS FAGINEA (Schrad.) Karst. Forming white lines often 1 mm. wide and several mm. long on old wood. The white surface constitutes the hymenium of the plant, which consists of asci, paraphyses and spores. Collected commonly in woods near Fargo.

## 4. HYSTERIINEAE

### 30. HYSTEROPATELLA

HYSTEROPATELLA PROSTII (Duby.) Rehm. Plants boat-shaped, and intermediate in form between *Patellaria* and *Hysterium*, the plants being at first hysteriform and later becoming subpatellate. Collected near Fargo.

### 31. HYSTEROGRAPHIUM

HYSTEROGRAPHIUM MORI (Schw.) Rehm. Plants linear, opening with a slit-like aperture, spores muriform, brown. Common on old wood of various kinds. Collected on old oak wood near Fargo.

HYSTEROGRAPHIUM FRAXINI (Pers.) DeNot. A very common and abundant species on bark and wood of ash. Dead branches still on the tree are often nearly covered with the small, boat-shaped plants. Very different from the preceding. The species has also been collected on *Xanthoxylum.*

### 32. GLONIOPSIS

GLONIOPSIS GERARDIANA Sacc. The species of this genus differ from those of the preceding in that the spores are colorless instead of brown. Collected on old oak wood, near Fargo.

### 33. GLONIUM

GLONIUM STELLATUM Mühl. Plants forming black stellate masses on old wood, the individual plants linear, opening with a cleft. The first appearance is a dense mass of black mycelium.

GLONIUM PARVULUM (Gerard) Sacc. Plants very small and parallel with each other, often occurring in great numbers and rather closely crowded. Collected on old stumps in woods near Fargo.

GLONIUM LINEARE (Fries) DeNot. Plants larger than the preceding and differing in spore characters. Collected on wood at Hawk's Nest.

### 34. HYPODERMA

HYPODERMA SCIRPINUM DC. Plants forming shining black lines on the stems of the host with a delicate slit extending lengthwise through the center. On stems of *Scirpus* sp. I am indebted to Dr. J. F. Brenckle for specimens of this species.

NEW YORK BOTANICAL GARDEN.